The Neacoxie Wildlife Corridor

Connecting People and the Landscape

A Natural History:

The Neacoxie Corridor is a series of dunes on the Clatsop Plains. Established thousands of years ago, these dune ridges and valleys connect both directly and indirectly to the Neacoxie Creek and the Neawanna/ Necanicum Estuary. Between the mountains and the ocean, a 0.5 to 2 mile wide strip of land called the Clatsop Plains stretches 15 miles from the mouth of the Columbia River to the Necanicum River. This region established a series of parallel sand dune ridges over time. The oldest dune complex of the Clatsop Plains, approximately 3500 years old, rests against the base of the coast range at Cullaby Lake. Through the forces of the Columbia river and the material that it brings out to sea spreading north and south, a natural cycle of dune expansion and stabilization continued to build new dunes westward, and the Neacoxie Corridor was created. This series of dunes contains a mosaic of interdunal lakes and wetland swales, Spruce forest fringes, shore pine forests and plantations, fields of European beach grass, grazed and fallow pastures, residential neighborhoods, golf courses, and the last remaining native coastal prairie in the region.

A Human History:

Historically the prairie community was dynamic, changing as wind-blown sand dunes shifted through the seasons. Even today, buried beneath the layers, we still find Native American midden sites that are many thousands of years old, full of clam shells that were placed on what was then the beach. This shifting sand was the driver for the ecological system of the prairie. As an early successional stage community type, the native prairie plants need some disturbance regime in order to keep shrubs and trees from encroaching. However, as early pioneers began to settle the area, the shifting dunes became quite unsettling for them, sometimes half burying homes in sand after an intense winter storm. Jetties, such as the South Jetty, also contribute to sand accretion and thus cause even more sand to accumulate in the Clatsop Plains area. On the inland dune ridges, which were stabilized with native coastal prairie plants, grazing of the prairie began as homesteads were established. Because the native prairie is shallow rooted, heavy grazing by cattle began to break down the root structure and lead to active dunes, meaning that the sand began blowing on inland ridges as well. The more human interaction with the Clatsop Plains grew, the more the sand blew, and the more talk there was of what to do about this blowing sand. Consequently, in the mid-30's the Soil Conservation Service(SCS) along with a Civilian Conservation Corps (CCC) in Warrenton undertook a huge effort to stabilize the dunes. With 3,000 acres of shifting sand being stabilized, this effort was one of the most extensive dune stabilization efforts in the western United States. This effort included a variety of techniques such as: installing sand fences to catch blowing sand, remnants of these fences can still be seen today; hot crude oil was sprayed on the sand to prevent it from drifting, but this was deemed an ineffective method and was only used experimentally; and other techniques such as piling brush, gravel, rock and clay on the sand were also used. After trying these techniques, it was determined that none of these alone would work for a long term solution, and that vegetative cover would need to be established on the open sand to achieve the desired long term effect of totally stabilized, or in-active, dunes.

Vegetative control of the dunes was a three step process and proved to be incredibly effective in stabilizing the shifting sand. Unfortunately for the native ecology, the chosen plants where largely invasive species and have degraded the wildlife habitat with in the Neacoxie Wildlife Corridor.

Introducing European beach grass (*Ammophila arenaria*), a sand stilling grass, was the initial step in this process and the results can be widely seen all up and down Clatsop beaches, as well as all along the Pacific Coast. Where historically the fore-dune would have been shifting bare sand with a few native pioneer plant species such as sand verbena (*Abronia spp.*), native dune grass (*Elymus mollis*), beach morning glory (*Convolvulus soldanella*) and large-headed sedge (*Carex macrocephala*), what we see today is a complete monoculture of European beach grass. The intermediate step employed was to introduce woody legumes. These are shrubs that have strong root systems and are able to fix atmospheric nitrogen. This ability allows these shrubs to establish in sandy, nitrogen poor soils. Not only are these shrubs able to establish in and thus stabilize the sand, but the nitrogen fixing ability actually begins to change the chemistry of the sand and effectively starts to make soil instead. This was of course a desirable outcome for pioneers interested in grazing and agriculture. Unfortunately, scotch broom was the woody legume chosen and, as many of us know from personal experience, scotch broom invades everywhere including pastures, wildlife habitat, forests and yards. The SCS spent years planting scotch broom on the plains, but now that more is known about its negative effects, they are putting a considerable effort in to removing and controlling this nuisance species. The final step utilized in the stabilization effort was to revisit the previously stabilized areas and begin planting trees. At this point, the sand was beginning to have more of an organic layer (soil) but it was still rather thin, and so the tree species needed to be chosen based on their nutrient needs. Shore pine (*Pinus contorta*) are a native tree species that was planted in the dunes, but in an unnatural density and abundance. Although many people refer to all pines seen in the Clatsop Plains as Shore pines, there are actually a number of other introduce species as well such as Cluster pine, Scotch pine, Mountain pine and Austrian pine. These pines, though fast growing and well adapted to nutrient poor soils, are not adapted to the coastal climate, especially the forces of the wind. These are relatively short lived species, and may climax around 80 years old. The short life span of these introduced pines, and their inability to sustain strong winds ultimately led to the effects of the December 2nd wind storm. This type of wind storm is a very natural and integral part of the North Coast ecosystem, but with human adaptations to the landscape, we see what appear to be detrimental effects.

The Corridor Today:

Despite the many alterations to the corridor along the Neacoxie, it is still rich in wildlife habitat and home to a diversity of plants and creatures. Native coastal prairie patches still exist on the Clatsop Plains and form the building blocks for an enhanced prairie stewardship plan that may result in one day again evoking the words of Lewis and Clark as they described the "endless views of wavering golden prairie". The wildlife of the Neacoxie Corridor is incredibly varied, including elk, deer, raptors, waterfowl, songbirds, butterflies, dragonflies, and more. The flora in the native coastal prairie consists of colorful wildflowers such as buttercups, asters, strawberries, lilies, orchids, and violets, with the wetland and forest fringes providing an entirely different set of species including spruce trees, sedges, ferns, and willows. These habitats and the species that use them do not fare well in small, isolated patches of land. They need to be distributed to form some kind of connected corridor that allows natural wildlife movement and dispersal. To that end, The North Coast Land Conservancy and its partners have been involved in stewardship of the Neacoxie Wildlife Corridor for the past decade. This wildlife corridor provides an important link in the region's natural landscape by connecting coastal prairie, wetlands, open-water, forested fringes, and habitats associated with the Neacoxie Lakes and Neacoxie Creek.

Connecting the Landscape and the People:

NCLC's "ecosystem approach" to land stewardship requires an understanding of the region's entire landscape. We cannot simply conserve small patches of pristine habitat, but must think about how to increase the overall livability of the landscape for all species. This means strategically connecting natural lands to maintain ecosystem functions, meeting the habitat range requirements of a variety of species, and providing connectivity across the landscape to allow for continued species migration and gene flow. We understand that people and developments will continue to be a part of this area, and are working toward a strategy that provides a home for all living things. We have acquired land, conducted research on potential habitat enhancement options, and hope to continue working with stakeholders by providing leadership for interested private landowners and developers to create stewardship plans for their properties in the Neacoxie Wildlife Corridor. When implementing stewardship plans on our lands, we use three strategies: protection, passive enhancement, and active habitat development. Below are some ways you can use these same strategies on your land.

Ways You Can Participate in Stewardship of the Corridor:

Protection Strategies:

- Consider donating or selling your natural resource land for conservation, or placing a conservation easement on a portion of habitat that you own.

Passive Strategies:

- If you have a patch of grassland that contains native species, **mow or weed-whack the taller grasses, while leaving the native flowers,** a couple times a year. This will knock back the invasive grasses and their seed source while reducing competition.
- **Cut Down Scotch Broom.** When it is in flower, and before it goes to seed (May-July.) cut it as close to the ground as you can with out touching, so that the plant can not re-sprout. Scotch broom has a photosynthetic stem, and so even with out leaves in can sometimes re-sprout from its stump. If you pull the younger plants, be careful to limit disturbance so that Scotch Broom seedlings do not colonize the disturbed area.
- **Mow non native grasses.** Even if you do not have Native prairie species, mowing down the non-native grass will help by eliminated the seed source from blowing into the native patches.
- **Limit the use of chemicals and fertilizers.** Heavy fertilizers and chemicals can upset the balance of nutrients in the soil and water. This can cause water pollution and unwanted pests to thrive such as mosquitoes and aquatic weeds.

Active Strategies:

- **Plant Native Species in your yard.**
  All species of butterflies, and most people too, love *wildflowers.* Purple Aster, Pearly Everlasting, Yarrow, Coast Angelica, Violets and Strawberries are attractive flowers and native prairie species.
  Red Fescue, and Idaho Fescue are hearty bunch *grasses* for lawn, and Dune Sedge is low growing and stays green almost year round!
  For *shrubs* and privacy, try Willow in wetter spots and Wax Myrtle and Evergreen Huckleberry in upland areas, and for *ground cover* in the shade, Salal, Sword fern and Kinnikinnick (Bear berry) are nice and hearty.
- **Tree Choices**
  If you are interested in enhancing your forest landscape, you'll first want to see if your soils will be able to support conifers. If they can establish, spruce trees are probably the best adapted to the harsh exposures that fore-dunes offer, and will likely fare better than pines in the long run. Alder is a deciduous that you may also be able to establish as it can handle more

nutrient poor soils, but may not hold up to winter storms quite as well. A mix of the two in a good size stand will likely offer its own protection from the wind. An attractive mix and one that serves wildlife in many ways is a combination of Crabapple and Cascara, both are deciduous. From the use by the birds and the bees to the flowers on the trees, these two natives are a great compliment to the prairie.

Sandy soils can be very difficult to landscape. Because native plants are used to growing here, they do not require fertilizers or much watering, making them easier on the environment and you!

NCLC Declares the Week of May 19th -25th Broom Buster Week!

We encourage everyone to begin removing scotch broom on their own land during this week. When we all work together and do our own part, amazing things can happen. You are also welcome to join us with efforts on our lands during this week. We will have a crew from the Columbia River Youth Corps out in the Corridor removing scotch broom on conservation lands from Monday to Thursday. Then on Saturday student volunteers from the Tongue Point Job Corps will be out at it again and all are welcome to join us! Please contact our Land Steward, Katie Voelke if you would like to participate, or if you have questions about a technique you'd like to use on your land! (503) 738-9126 or katiev@nclctrust.org